#### Lucerne

#### Lake Overview

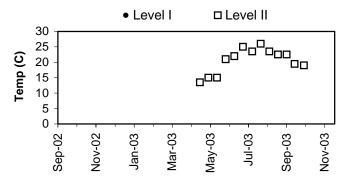
Volunteer monitoring began at Lake Lucerne in the 1980s and continued through 2003, with a gap in the early 1990s. The data indicate that this city lake (Maple Valley) is relatively low in primary productivity (oligotrophic - mesotrophic) with good to excellent water quality. Since the lake surface makes up 4% of the drainage area, direct precipitation is not as important as watershed inputs. It connects to Pipe Lake through a shallow channel, and the outlet stream from both lakes exits from Lucerne. Land use analysis of 2002 aerial photographs showed over 78% of the surrounding watershed has been developed for uses other than agriculture.

Lake Lucerne has no public access, but has a history of both milfoil and *Hydrilla* infestations for which eradication efforts have been funded by the Washington State Department of Ecology, Maple Valley and Covington since 1995. Residents should keep a close eye on aquatic plants growing nearshore to catch new or expanding patches of these and other noxious weeds.

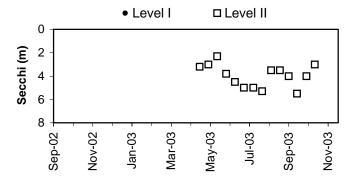
## **Physical Parameters**

Secchi transparency ranged between 2.3 and 5.5m from April through October. Level II surface water temperatures reached 26.0 degrees Celsius in August. There were no precipitation or water level records, but records for Pipe Lake should be very similar.

#### Lake Temperature



#### Secchi Depth

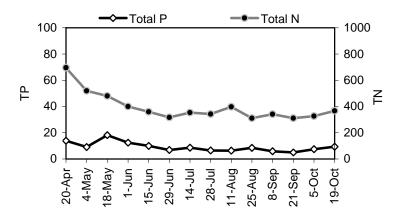


Lake Level and Precipitation

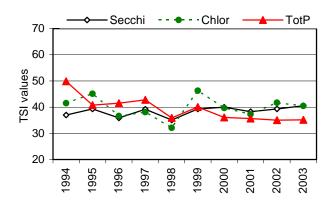
No Data Available

#### Lucerne

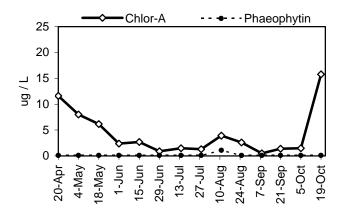
#### Nutrient Analysis



#### TSI Ratings



#### Chlorophyll a Concentrations (ug/L)



### Common algae Group

unidentified species	chrysophyte
Dinobryon divergens	chrysophyte
Cyclotella sp	diatom-chrysophyte

# Nutrient Analysis and TSI Ratings

Total phosphorus and total nitrogen remained in generally consistent proportion to each other through the sampling period. The N:P ratio ranged from 27 to 63. The 2003 TSI values were slightly spread out in the upper range of oligotrophy. TSI-TotP was lower than the values for chlorophyll and Secchi, which were on the threshold of mesotrophy.

# Chlorophyll and Algae

Chlorophyll was at high values in spring and fall, but dropped considerably through the summer months. The algae in spring were dominated by an unidentified chrysophyte species and the diatom-chrysophyte *Cyclotella*. Autumn populations also included the dinoflagellate *Peridineum* and the diatom *Melosira*. Small numbers of the bluegreen *Anabaena* were found both early and late in the sampling period.

Lucerne 2003 Level I Data

# No Level I Data Available For This Lake

Lucerne 2003 Level II Data

Date	Temp	Secchi	Chl-a	TP	TN	Algae	N:P	Calc	ulated	TSI	
(2003)	(°C)	(m)	(μg/l)	(μg/l)	(μg/l)	Obsv.		Secc		TP	Notes
20-Apr	13.5	3.2	11.6	13.8	695	3	50	43.2	54.6	42.0	Algae heavy at 1-2 ft below under surface.
4-May	15.0	3.0	8.0	9.1	520	3	57	44.1	51.0	36.0	Thick layer about 25-30 cm.
18-May	15.0	2.3	6.1	18.1	481	3	27	48.0	48.4	45.9	
1-Jun	21.0	3.8	2.4	12.3	400	1	33	40.7	39.2	40.4	
15-Jun	22.0	4.5	2.7	9.9	360	1	36	38.3	40.3	37.2	
29-Jun	25.0	5.0	0.9	6.9	317	1	46	36.8	29.5	32.0	There was a spot treatment for <i>Hydrilla</i> on 6/28.
14-Jul	23.5	5.0	1.5	8.5	353	1	42	36.8	34.5	35.0	ioi riyarma on orzo.
28-Jul	26.0	5.3	1.3	6.5	342	1	53	35.9	33.1	31.1	
11-Aug	23.5	3.5	3.9	6.3	397		63	41.9	44.0	30.7	
25-Aug	22.5	3.5	2.6	8.4	311	1	37	41.9	39.9	34.8	
8-Sep	22.5	4.0	0.6	5.9	341	1	58	40.0		29.8	Chlor-a value was <mdl. Reported as .6μgl.</mdl. 
21-Sep	19.5	5.5	1.4	5.0	311	1	62	35.4	33.9		TP value was < MDL. Reported as 5µg/L.
6-Oct	19.0	4.0	1.5	7.4	327		44	40.0	34.5	33.0	r reperiod de epg. I
19-Oct		3.0	15.8	9.3	367	1	39	44.1	57.6	36.3	
	Temp	Secchi	Chl-a	TP	TN	Algae	N:P	Calc	:ulated	TQI	
	(°C)	(m)	(μg/l)	μg/l)	(μg/l)	Obsv.	IV.F	Secc		TP	
Mean	20.6	4.0	4.3	9.1	394.4	1.5	46	40.5	41.6	35.7	TSI Average = 38.9
Median	22.0	3.9	2.5	8.5	356.5	1	45	40.4	39.9	35.0	
Min	13.5	2.3	0.6	5.0	311.0	1	27	35.4	29.5	29.8	
Max	26.0	5.5	15.8	18.1	695.0	3	63	48.0	57.6	45.9	
Count	13	14	14	14	14	12	14	14	13	13	